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## REMARKS

Following the amendment above, claims 1-35, 37-45 and 47-57 are pending of which claims 1, 16 and 51 are independent. Claims 36 and 46 have been cancelled herein. No claims have been added.

Claim Objections

Claims 1 and 16 were objected to because of a grammatical error (the claims reading "Micro-Electro Mechanical Systems" instead of "Micro Electro-Mechanical System". Applicant respectfully notes that appropriate corrections were made in the previous Amendment. Applicant believes the strike-through of the letter 's' went through the mid-section of the letter making the indication of a deletion hard to see.

Claims 1, 16 and 51 were objected to because of the use of the word 'fully' within the term "fully-parameterized". Applicant has removed the word 'fully' from the objected to claims.

Claims 1, 16 and 51 were objected to because the Examiner felt the terms "mathematical theory" and "mathematical behavioral model" were unclear. Applicant has amended claims 1, 16 and 51 to include the claim element "mathematical behavioral model" and has provided additional description of the term.

Accordingly, Applicant believes all of the objected to claims are in condition for allowance.

Claim Rejections Pursuant to 35 U.S.C. §112

Claims 16-30 and 41-50 were rejected as being indefinite because the term "said instructions" in claim 16 lacked antecedent basis. Applicant has amended the preamble to correct the identified issue. Accordingly, Applicant believes claims 16-30 and 41-50 to be in condition for allowance.

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Claim Rejections Pursuant to 35 U.S.C. §102

Claims 1-57 (of which claims 1-35, 37-45 and 46-57 remain pending) were rejected under 35 U.S.C. §102(b) as being anticipated by a publication entitled "AN ENVIRONMENT FOR DESIGN AND MODELING OF ELECTRO-MECHANICAL MICRO-SYSTEMS" (*Journal of Modeling and Simulation of Microsystems*, Vol. 1, No. 1, Pages 65-76, 1999), Zaman, Bart, Gilbert, Swart and Mariappan (hereafter "Zaman"). In light of the Amendments above and remarks below, Applicant respectfully traverses the rejections.

The cited Zaman article discusses a prior art technique that processed a schematic of a MEMS model to produce an intermediate layout which is then further processed by the steps of creating a solid model, meshing the solid model, and performing "full 3-D physics simulations" before arriving at a 3D visualization of a MEMS model. This process differs significantly from the claimed invention as will be discussed further below. As noted in Applicant's previous Amendment, the Applicant is quite familiar with the technique discussed in Zaman as the first three co-authors of the Zaman article were employees of Microcosm Technologies, Inc. which was renamed to Coventor, Inc. in January 2001. Coventor, Inc. is the assignee of the claimed invention. Additionally, the MEMCAD software mentioned in the text was an earlier version of the CoventorWare software currently sold by Coventor, Inc. (MEMCAD was renamed as CoventorWare in April 2001). Accordingly, in an effort to further clarify the differences between the Zaman system and the claimed invention, Applicant has amended the independent claims as set forth above.

Applicant has amended independent claim 1 to indicate "the generated 3D view [is] generated directly from the MEMS model depicted in the schematic view". Applicant has also amended independent claim 1 to indicate that a result of the simulation is displayed in the 3D view so as to "portray an animation of a mechanical motion of the MEMS". Zaman fails to disclose either claim limitation.

In contrast to Applicant's amended claim 1 which requires that the 3D view be generated directly from the MEMS model depicted in the schematic view, Zaman describes a lengthy process that includes intermediate steps between the schematic view and the 3D visualization

discussed in Zaman (see Figure 5 on page 68 of Zaman and the Layout Generation discussion in section 3 on page 67 of Zaman). The model in Zaman undergoes a sequence of operations including meshing prior to 3D simulations being performed (see Figure 5 Sequence of operations and corresponding description in section 4.2 on page 68 of Zaman). This is the exact sort of lengthy procedure that Applicant's invention was designed to avoid.

Additionally, Zaman also lacks the ability (as required by Applicant's amended independent claims) to show an animation of the mechanical motion of the MEMS where that animation is appearing in a 3D view of the MEMS model generated directly from the MEMS model depicted in the schematic. As noted above, the Zaman system was incapable of directly generating the 3D view from the MEMS model depicted in the schematic view. Furthermore, while Zaman shows examples of 3D visualization of simulation results, these examples are without exception based on the procedure diagrammed in Figure 5 of Zaman, and nowhere in the cited reference does Zaman discuss an animation of a mechanical motion of the MEMS in a 3D view of the MEMS model generated directly from the MEMS model depicted in the schematic view.

The Examiner-cited sections and figures of Zaman used to reject the previous version of claim 1 (and claim 36 for the 'animation' limitation) fail to disclose Applicant's required claim elements. More particularly, the Examiner relied on Figure 3, section 4.1, figure 5, figure 7 and 10, section 5.1 in rejecting the previous version of claim 1. Applicant respectfully submits that none of these cited sections discuss the generation of a 3D view showing the simulation results for the MEMS model that include an animation of a mechanical motion of the MEMS (where the 3D view is generated directly from the MEMS model depicted in the schematic). Figure 3 shows a schematic. Figure 5 shows a sequence of operations which makes clear that the solid model is undergoing many intermediate steps prior to the full 3D physics simulations (see left side of Figure and accompanying description). Figure 7 is a plot of Simulation and Model data for a spring in an accelerometer, which corresponds to one component in the schematic of Figure 3 and therefore does not show an animation of a motion of the MEMS model in a 3D view, which would include all of the components in the schematic. Figure 10 describes the coordinate system used in the modeling environment and does not show any animation of a MEMS model in a 3D view that is generated directly from the MEMS model depicted in the schematic view.

Applicant also notes that the coordinate system discussed is used to perform simulations after the MEMS model has been transformed by the intermediate steps required in Zaman. Section 4.1 discusses generally the creation of macro-models in Zaman. The sequence of operations discussed in section 4.1 is discussed in greater detail in section 4.2 and Figure 5 which makes clear that Zaman is transforming the original model with intermediate steps (partitioning, meshing, base transformation) prior to performing 3D simulation. This process relying on intermediate steps is inconsistent with the Applicant's claim limitations. The Examiner also cited section 5.1 of Zaman which is a general discussion of modeling degrees of freedom for model components but does not address the issue of the missing claim limitations.

Finally, the Examiner cited the abstract, sections 1.1, 4.2, 7 and 10, and figures 5-10 and 12 in rejecting former claim 36 which discussed the simulation results being animated. Again Applicant respectfully traverses. Section 1.1 discusses the simulation of a model generally but does not disclose Applicant's claim limitations requiring an animation of the mechanical motion of the MEMS where that animation is appearing in a 3D view of the MEMS model generated directly from the MEMS model depicted in the schematic. Section 4.2 has been discussed above. Section 7 and the accompanying claim 12 discuss the 3D visualization of a finite element mesh of a MEMS component. The meshing is an intermediate step in Zaman between schematic and 3D visualization that is inconsistent with Applicant's claim limitation that requires the direct generation of the 3D view of the MEMS model being simulated (and whose animated motion is shown). Section 10 and the abstract are conclusion sections summarizing the above discussion. Figure 6 shows a partial view of a meshed 3D solid model (see section 4.2). As the caption to Figure 6 makes clear, the figure is generated from the layout, an intermediate step inconsistent with Applicant's 'direct' claim limitation. There is also no discussion of animating this model. Figure 8 is another plot of model and simulation data while Figure 9 is a description of proof of mass rotation. The other figures have been previously discussed.

In summation, Zaman discusses a system for performing 3D visualization but one relying on the intermediate steps of creating 2D layouts from the original schematic and performing meshing of a 3D solid model prior to 3D visualization. These procedures are inconsistent with and do not disclose Applicant's claim limitations.

As independent claims 16 and 51 have also been amended to include limitations corresponding to those discussed above with reference to claim 1 (claim 51 lacks the 'animation' limitation but includes the 'direct' limitation discussed above with reference to claim 1), Applicant believes all of the remaining claims are in condition for allowance. Accordingly, Applicant requests the present rejections be withdrawn and all claims passed to allowance.

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## CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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